UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/482,023	01/13/2000	Devendra T. Barot		6462

23505 7590 12/23/2003

CONLEY ROSE, P.C.
P. O. BOX 3267
HOUSTON, TX 77253-3267

EXAMINER	
RIDLEY, BASIA ANNA	
ART UNIT	**PAPER NUMBER**
1764	

DATE MAILED: 12/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

KB

Office Action Summary	Application No.	Applicant(s)	
	09/482,023	BAROT, DEVENDRA T.	
	Examiner	Art Unit	
	Basia Ridley	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 12 November 2003.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 10,15,17-20,22-29,31,32,34,35 and 37-40 is/are pending in the application.

4a) Of the above claim(s) 22-29 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 10,15,17-20,31,32,34,35 and 37-40 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 30 July 2003 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. Replacement drawings were received on 30 July 2003. These drawings overcome objections set forth in the Office action mailed on 6 November 2002. Said drawings are not acceptable for the reasons as set forth below.

2. Figures 1-2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated (as disclosed on page 3 of the specification as originally filed and in drawing legends of the original Fig. 1-2). See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 10, 15, 17-20, 34 and 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art (see pages 1-2 and Fig. 1-2 of the instant application) in view of Takada et al. (JP 61-222939).

Regarding claim(s) 10, Admitted Prior Art (see Fig. 1-2 of the instant application) disclose(s) similar quench gasifier comprising:

- a combustion chamber;
- a quench chamber adjacent to said combustion chamber;

- said combustion chamber including a throat adjacent to said quench chamber for directing produced gases from the combustion chamber to the quench chamber; wherein
- said throat includes an inlet adjacent to said combustion chamber, said inlet having an inlet diameter (D_1), an outlet adjacent to said quench chamber, said outlet having an outlet diameter (D_2 and D_3), and an inner and an outer surface between said inlet and said outlet;
- wherein said inlet diameter (D_1) is greater than said outlet diameter (D_2 and D_3).

While the Admitted Prior Art discloses that slag solidification is a recognized problem in a throat of gasifier (see Admitted Prior Art, page 2, second paragraph of the instant specification), it does not disclose an electrical heating element between said inner and said outer surfaces of said throat.

Takada et al. discloses an apparatus for discharging molten slag (abstract) and teaches that it is desirable to install an electric heating element between inner and outer surfaces of said apparatus in areas suffering from slag buildup, for the purpose of preventing slag from solidifying on said inner surface (Fig. 2 and page 2, column 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to add an electrical heating element between said inner and said outer surfaces of the throat in the apparatus of Admitted Prior Art, as taught by Takada et al., for the purpose of preventing slag from solidifying in said throat.

Regarding claim(s) 34, Admitted Prior Art (see Fig. 1-2 of the instant application) disclose(s) similar quench gasifier comprising:

- a combustion chamber;
- a quench chamber adjacent to said combustion chamber, said quench chamber having a gas outlet for directing gases away from said quench chamber;

- said combustion chamber including a throat for directing produced gases and slag from the combustion chamber to the quench chamber; wherein
- said throat comprising an inlet, an outlet, and an inner and an outer surface between said inlet and said outlet;
- wherein said inner surface has a curved conical contour (Fig. 2).

While the Admitted Prior Art discloses that slag solidification is a recognized problem in a throat of gasifier (see Admitted Prior Art, page 2, second paragraph of the instant specification), it does not disclose an electrical heating element between said inner and said outer surfaces of said throat.

With respect to Takada et al. the same comments apply as set forth above.

Regarding claim(s) 37-40, Admitted Prior Art (see Fig. 1-2 of the instant application) disclose(s) similar quench gasifier comprising:

- a combustion chamber;
- a quench chamber adjacent to said combustion chamber;
- said combustion chamber including a throat adjacent to said quench chamber for directing produced gases from the combustion chamber to the quench chamber; wherein
- said throat includes an inlet adjacent to said combustion chamber, said inlet having an inlet diameter (D_1), an outlet adjacent to said quench chamber, said outlet having an outlet diameter (D_2 and D_3), and an inner and an outer surface between said inlet and said outlet.

While the Admitted Prior Art discloses that slag solidification is a recognized problem in a throat of gasifier (see Admitted Prior Art, page 2, second paragraph of the instant specification), it does not disclose an electrical heating element between said inner and said outer surfaces of said throat.

With respect to Takada et al. the same comments apply as set forth above.

Further, while Takada et al. does not explicitly disclose that said heater element is configured to maintain said inner surface at a temperature of at least 3000°F, the reference does disclose that the purpose of said heater is to prevent slag solidification (abstract). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to configure said heater to maintain said inner surface at a temperature which prevents slag solidification. Further, since it was known in the art at the time of the invention that slag solidifies at temperatures below 3000°F (see Admitted Prior Art, page 2, second paragraph of the instant specification), it would have been obvious to one having ordinary skill in the art at the time the invention was made to configure said heater to maintain said inner surface at temperatures of at least 3000°F. Doing so would amount to nothing more than a use of a known element for its intended use in a known environment to accomplish entirely expected result.

Regarding claim(s) 15 and 17-20, Admitted Prior Art in view of Takada et al. disclose(s) all of the claim limitations as set forth above. Additionally, Admitted Prior Art discloses the gasifier wherein:

- said inner surface comprises a wind tunnel profile (Fig. 2);
- the ratio of said inlet diameter to said outlet diameter is at least 3 (Fig. 2);
- said ratio is in the range from 3 to 6 (Fig. 2);
- said quench chamber comprises a quench ring substantially axially adjacent to said throat outlet, such that the quench gasifier does not include a plenum chamber (Fig. 1);
- said quench ring has an inner diameter that is greater than the diameter of said throat outlet (Fig. 1).

Regarding limitations recited in claims 10, 15, 17-20, 34 and 37-40 which are directed to feedstock properties and/or a manner of operating disclosed gasifier, the examiner notes that neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Additionally it has been held that "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim." See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969).

5. Claims 31, 32 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art (see pages 1-2 and Fig. 1-2 of the instant application) in view of Takada et al. (JP 61-222939), as applied to claims 10 and 34 above, and further in view of Haneda et al. (JP 61-235492).

Regarding claim(s) 31, Admitted Prior Art in view of Takada et al. disclose(s) all of the claim limitations as set forth above. Additionally, while the references do not explicitly disclose that said heating element extends from throat outlet to throat inlet, or into a portion of combustion chamber, Takada et al. teaches that the heating element is placed in locations where slag solidification might be a problem (Page 2). In view of this disclosure and since it was known in the art at the time of the invention to extend heating elements from an inlet to an outlet of the gasifier throat (as evidenced by Haneda et al., Fig. 2) and further, since the specification is silent to unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to extend said heating element in the gasifier of Admitted Prior Art into other areas where slag solidification is a problem, including from throat outlet to throat inlet, or into a portion of the combustion chamber. Doing so would amount to nothing more than a use of a known element for its intended use in a known environment to accomplish entirely expected result.

Regarding claim(s) 32 and 35, Admitted Prior Art in view of Takada et al. disclose(s) all of the claim limitations as set forth above. Additionally, Takada et al. discloses the heating element which is installed near inner surface, such that the heating element substantially follows said inner surface.

In view of said disclosure and since it was known in the art at the time of the invention to install heating elements in throat of gasifiers such that said heating elements are spirally wound members having a first diameter near throat inlet and a second diameter near throat outlet, wherein said heating elements are near inner surface and substantially follow said inner surface, as evidenced by Haneda et al. (Fig. 2), it would have been obvious to one having ordinary skill in the art at the time the invention was made to install the heating element of Takada et al. near inner surface of the throat, said inner surface having curved conical contour, in the gasifier of Admitted Prior Art, such that the heating element substantially follows said inner surface, as doing so would amount to nothing more than a use of a known element for its intended use in a known environment to accomplish entirely expected result. When installed in such way the heating element will, necessarily, have diameter near throat inlet greater than the diameter near throat outlet.

Response to Arguments

6. Applicant's arguments filed on 30 July 2003 and 25 September 2003 have been considered but are not persuasive.

Regarding claims 10, 15, 17-20, 31, 32, 34 and 35, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., temperatures of operation and other operational conditions) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181,

26 USPQ2d 1057 (Fed. Cir. 1993). Further, the examiner notes that neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Additionally it has been held that "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim." See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969).

The applicant argues that one of ordinary skill in the art would not have used teaching of Takada et al. to modify gasifier of Admitted Prior Art, because Admitted Prior Art is directed to a quench gasifier, while Takada et al. discloses structure of a trough, and both apparatuses have different operating temperatures. This is not found persuasive. Takada et al. states that design and placement of a heater will prevent generation of slag coating on a wall, as set forth above. Since slag solidification on gasifier walls was a known problem (as evidenced by Admitted Prior Art, see page 2, second paragraph of instant specification), it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the gasifier design of Admitted Prior Art by adding heating element of Takada et al. to areas suffering from slag buildup, since said slag heating element is known to prevent slag solidification on walls. One of ordinary skill in the art at the time the invention was made would recognize that heating element used to heat a wall can be used in various applications, regardless of overall shape of the entire apparatus or specific temperatures at which said heating element operates, without changing principles of its operation. Further an ordinary artisan, knowing at what temperatures slag in gasifiers solidifies would use a heating element having sufficient capacity to prevent such solidification. Therefore, when looking for modification, which would prevent slag solidification on walls, one of ordinary skill in the art would utilize teachings regarding solutions to such problem, which can be found in various

applications, and not just in one specific application, such as, quench gasifiers.

Applicant's arguments with respect to claims 37-40 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. In view of the foregoing, none of the claims are allowed.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Basia Ridley, whose telephone number is (571) 272-1453. The examiner can normally be reached on Monday through Thursday, from 9:00 AM to 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola, can be reached on (571) 272-1444.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Basia Ridley
Examiner
Art Unit 1764

BR
December 14, 2003